

# Data Sheet

K Series  
450.D.101.06

## Analog Meters Maximum Demand Indicators with Bimetallic Movement, Combined M.D.I. and Moving-Iron Ammeter

BIQ 48 K

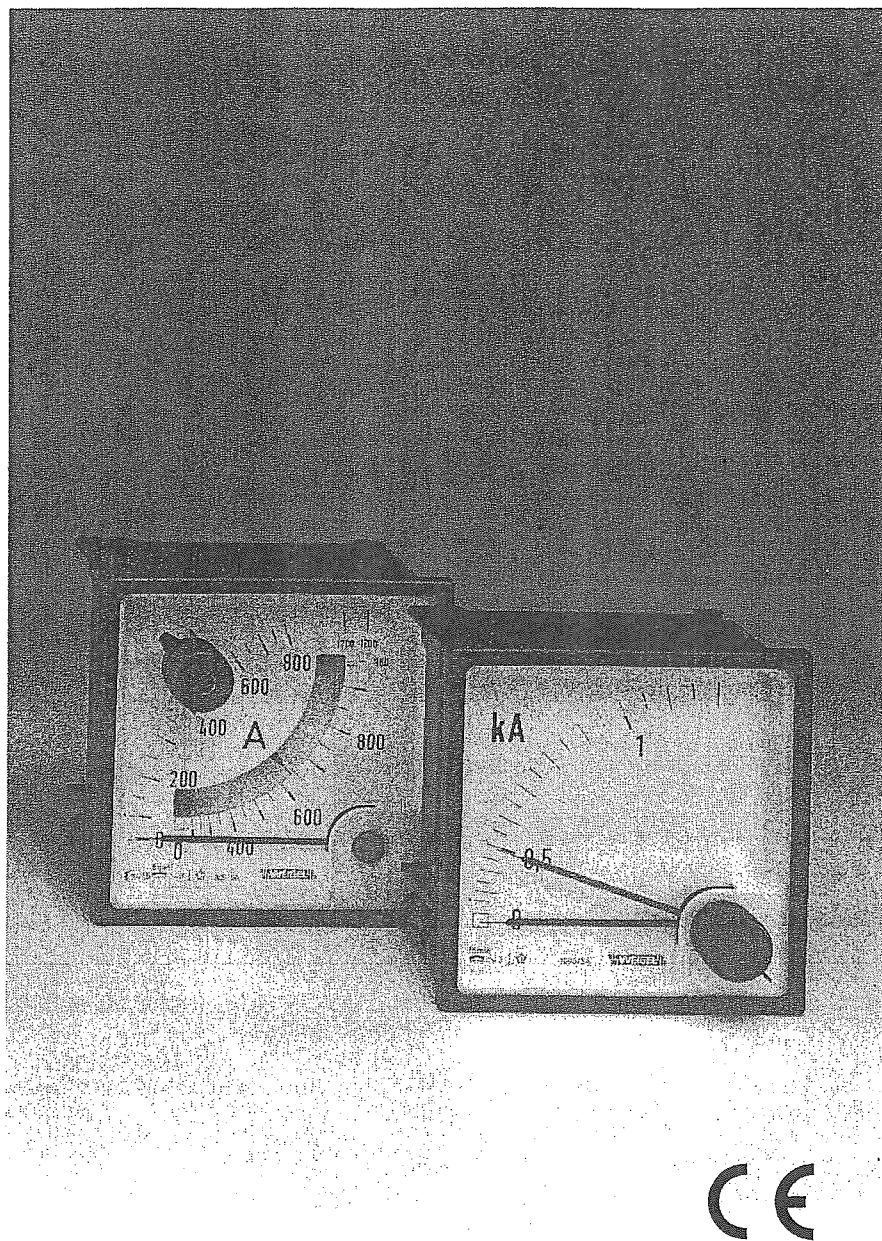
BIEQ 72 K

BIQ 72 K

BIEQ 96 K

BIQ 96 K

with Slide-In-Dial



**WEIGEL**

## Application

**Bimetallic** maximum demand indicators monitor the most economic use of transformer stations and L.T. distribution feeders by indicating the thermal/time characteristics of the load.

The bimetallic movements are thermally inert. They indicate the mean rms—value over 15 or 8 minute periods enabling to evaluate continuous loads rather than short—time current peaks.

The high torque of the thermal movement offers the possibility to drive a red slave pointer linked to the instrument pointer. Thereby, the highest current reached in the circuit can be read off at any time. The slave pointer is reset to the position of the indicator pointer by means of a sealable reset knob.

Where the instantaneous and maximum demand currents are required, the **BIEQ 72/96 K** instruments combine a thermal bimetallic and a moving—iron movement installed diametrically in one case.

The maximum demand indicators are suitable to be installed in switchboards, mosaic grid panels (except model **BIQ 48 K**) or machine tool consoles. The bezel, the glass window and the dial can easily be exchanged on—site.

## Functional Principle

Bimetallic movement with resettable red slave pointer and a thermally delayed indication enabling to measure the mean rms—value within a time lag of 8 min or 15 min.

Moving iron movement with shell—type system, silicon oil damping, pivot and spring—loaded jewel bearings (response time approx. 1 s).

## Mechanical Data

case details	square case suitable to be mounted in control / switchgear panels or mosaic grid panels (except model <b>BIQ 48 K</b> ), stackable		
material of case	polycarbonate thermoplastics, self—extinguishing with UL rating of 94 V — 0		
material of window	glass ♦		
colour of bezel	black (similar to RAL 9005) ♦		
position of use	vertical $\pm 5^\circ$ ♦		
panel fixing	swivel screw clamps or plate springs on top and bottom (except <b>BIEQ 72 K</b> ♦)		
mounting	stackable next to each other		
terminals	hexagon studs, M4 screws and wire clamps E3 terminal safety protection ♦		

dimensions (in mm)	<b>BIQ 48 K</b>	<b>BIQ 72 K</b>	<b>BIEQ 72 K</b>
bezel	□ 48 mm	□ 72	□ 72
case	□ 45	□ 66	□ 66
mounting depth	48	53	53
panel cutout	□ 45.2+0.3	□ 68+0.7	□ 68+0.7
panel thickness	1 ... 15	≤ 40	≤ 40
weight approx.	0.1 kg	0.2 kg	0.2 kg

dimensions (in mm)	<b>BIQ 96 K</b>	<b>BIEQ 96 K</b>
bezel	□ 96	□ 96
case	□ 90	□ 90
mounting depth	60	60
panel cutout	□ 92+0.8	□ 92+0.8
panel thickness	≤ 40	≤ 40
weight approx.	0.26 kg	0.3 kg

## Electrical Data

measuring unit	AC current				
frequency range	50 ... 100 Hz				
power consumption	BIQ			BIEQ	
VA ratings	48 K	72 K	96 K	72 K	96 K
at 1 A rated current	<0.5	<1.6	<1.6	<1	<1
at 5 A rated current	<2.2	<2.5	<2.5	<2.7	<3.4
overload capacity (acc. to DIN EN 60 051)					
continuously	1.2 times rated current				
1 s max.	10 times rated current				
Saturating current transformers shall be used to protect the movements against overloads exceeding specified overload ratings.					
pollution level	2				
operating voltage	600 V ⚡				
excess voltage	CAT II ⚡				
category					
enclosure code	IP 52 case				
	IP 00 for terminals without protection against accidental contact				
	IP 20 for terminals protected against accidental contact ⚡				

## Measuring Ranges

### measuring ranges AC current

bimetallic	0 ... 1 / 1.2 A	or	0 ... 5 / 6 A
moving iron	0 ... 1 / 2 A		0 ... 5 / 10 A
for use on current transformer (scaling to DIN series)			
bimetallic	0 ... N/1 / 1.2 A	or	0 ... N/5 / 6 A
moving iron	0 ... N/1 / 2 A		0 ... N/5 / 10 A

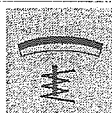
(with overload scaling)

movements available		BIQ	72 K	96 K	BIEQ	72 K	96 K
bimetallic	1 A	●	●	●	●	●	●
moving iron	1 A	—	—	—	●	●	●
bimetallic	5 A	●	●	●	●	●	●
moving iron	5 A	—	—	—	●	●	●

## Scaling

pointer	bar / knife—edge pointer	
pointer deflection	0 ... 90°	
scale characteristics	bimetallic quadratic; scales are calibrated down to 1/5 th rated current.	moving—iron practically linear;
overload scaling	bimetallic ♦ 1.2 times rated current	moving—iron 2 times rated current
scale division	coarse—fine	
scale length	BIQ 48 K 72 K 96 K 44 mm 62 mm 98 mm	BIEQ 72 K 96 K 44 mm 71 mm 62 mm 98 mm
bimetallic moving—iron	— — —	
thermal time delay ♦	48 K 72 K 96 K 15 min 15 min 15 min	BIEQ 72 K 96 K 15 min 15 min
bimetallic movem.		
response time		
moving iron movem.	— — —	approx. 1 s

♦ also refer to "Options"



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### Accuracy at Reference Conditions

accuracy class 3 (bimetallic movement  
acc. to DIN EN 60 051 referred to slave pointer)  
1.5 (moving-iron movement)

#### reference conditions

ambient temperature  $23^{\circ}\text{C} \pm 1\text{K}$   
position of use nominal position  $\pm 1^{\circ}$   
input rated measuring value  
others DIN EN 60 051

#### influences

ambient temperature  $-10^{\circ}\text{C} \dots +23^{\circ}\text{C} \dots +55^{\circ}\text{C}$   
position of use nominal position  $\pm 5^{\circ}$   
stray magnetic field 0.5 mT

### Environmental

climatic suitability climatic class 3 acc. to VDE/VDI 3540 sheet 2  
operating  $-10 \dots +55^{\circ}\text{C}$   
temperature range  
storage  $-25 \dots +65^{\circ}\text{C}$   
temperature range  
relative humidity  $\leq 75\%$  annual average, non-condensing  
shock resistance 15 g, 11 ms  
vibration resistance 2.5 g, 5 ... 55 Hz

### Rules and Standards

DIN 43 700 measuring and control instruments  
for panel mounting;  
nominal case and cutout dimensions  
DIN 43 701 electrical switchboard instruments  
DIN 43 718 bezels and front panels  
DIN 43 802 scales and pointers for electrical measuring  
instruments  
DIN 16 257 nominal position of use and  
position symbols  
applicable for measuring instruments  
DIN 40 050 enclosure codes;  
protection of electrical equipment against  
ingress of solid foreign bodies and of water  
DIN EN 60 051 direct acting indicating electrical measuring  
instruments and their accessories  
DIN EN 61 010 safety requirements for electrically operated  
measuring, control and laboratory  
equipment  
VDE/VDI 3540 sheet 2 reliability of measuring and control  
equipment (classification of climates)

### Options

#### case

window non-glaring glass  
colour of bezel gray (similar to RAL 7037)  
position of use to be specified  $15^{\circ} \dots 165^{\circ}$   
marine application non-certified  
panel fixing plate springs for BIEQ 72 K on request

#### electrical data

operating voltage up to 1000 V  
excess voltage up to CAT III  
category

#### dial

blank dial pencil-marked initial and end values  
scale division 0 ... 100%  
and figuring  
additional lettering to be specified e.g. "generator"  
additional figuring to be specified  
coloured marks red, green or blue for important scale values  
coloured sector red, green or blue within scale division  
overload scaling no overload range  
bimetallic or overload range 1.5 times rated current  
logo on the dial none or to be specified

#### others

calibration for a definite frequency 100 ... 1000 Hz  
thermal time delay 8 min or 15 min

#### terminal protection against accidental contact

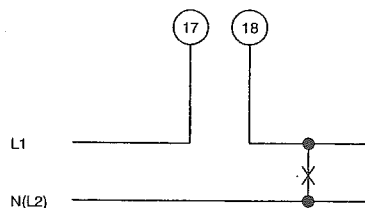
full-sized rear cover (except model BIQ 48 K) or protective sleeves  
safe against back-handed and fingertip contact acc. to VBG 4 /  
DIN 57 106, sec. 100

#### saturating current transformer

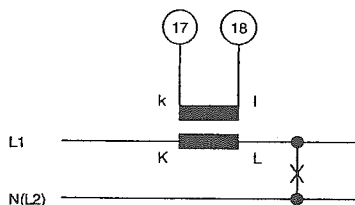
saturating transformer accuracy class 3, 50 Hz to protect the move-  
ments against overloads up to 100 times rated current (1 s max).  
with base fixing attachment for panel projection mounting  
ESW 1/5 A, 4.25 VA  
ESW 5/5 A, 4.25 VA

## Connections

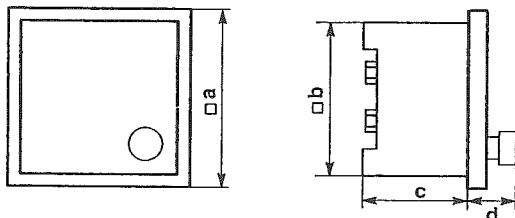
direct-connected



for use on current transformer



## Dimensions



dimensions (in mm) BIQ 48 K BIQ/BIEQ 72 K BIQ/BIEQ 96 K

a	48	72	96
b	45	66	90
c	48	53	60
d	11	11 (BIQ 72 K) 20 (BIEQ 72 K)	20

## Ordering Information

type	
BIQ	maximum demand indicator with bimetallic movement
BIEQ	combined M.D.I. & moving-iron ammeter
front dimensions	
48 K	48 mm x 48 mm
72 K	72 mm x 72 mm
96 K	96 mm x 96 mm
measuring ranges	refer to table inside
window	glass *) non-glaring glass
colour of bezel	black (similar to RAL 9005) *) gray (similar to RAL 7037)
position of use	vertical *) to be specified 15 ... 165° **)
marine application	none *) non-certified
dial	scale division & measuring range alike resp. acc. to DIN series if used on C.T. *) no dial blank dial scale division and figuring 0 ... 100% additional lettering to be specified **) additional figuring to be specified **) coloured marks red, green or blue **) coloured sector red, green or blue **)
overload scaling	no overload range
bimetallic	1.2 times rated current *) 1.5 times rated current
calibration	50 Hz *) for a definite frequency 100 ... 1000 Hz
thermal time delay	8 min 1) 15 min 2)
logo	WEIGEL *) none to be specified **)
terminal safety protection	none *) full-sized rear cover protective sleeves
saturating current transformer	none *) ESW 1/5 A, 4.25 VA ESW 5/5 A, 4.25 VA

\*) standard

\*\*) Please clearly add the desired specifications.

1) standard for models BIQ 48 K, BIEQ 72 K

2) standard for models BIQ 72/96 K, BIEQ 96 K

### ordering example

BIEQ 96 K for use on current transformer 300/5 A,  
thermal time delay 15 min, WEIGEL logo

— specifications subject to change without notice; date of issue 03/05 —

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